

# Urban Level of Flood Protection Criteria



Cover Photo: Sacramento River at the Edge of the Natomas Basin (November 9, 2006), DWR Photo Lab

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The Sacramento River flows past several urban and urbanizing areas, including the City of Sacramento.

### Preface

The *Urban Level of Flood Protection Criteria* was developed in response to requirements from the Central Valley Flood Protection Act of 2008, enacted by Senate Bill (SB) 5 (2007), to strengthen the link between flood management and land use. The California Department of Water Resources (DWR) developed these criteria as a systematic approach to assist affected cities and counties within the Sacramento-San Joaquin Valley in making findings related to an urban level of flood protection before approving certain land-use decisions. In preparing these criteria, DWR used its broad experience and expertise in flood management and planning to address concerns related to flood protection and flood risk management.

The process to develop the criteria involved a collaborative effort with input from a diverse work group of representatives from cities, counties, other State of California and federal agencies, and associated professional organizations. To the greatest extent possible, the criteria were developed using existing criteria for similar practices to minimize additional burdens on cities and counties. Also, extensive comments were addressed from the April 2012 draft *Urban Level of Flood Protection Criteria* as well as changes due to subsequent legislation that amended the original SB 5 (2007) legislation.

DWR would like to recognize the contribution of voluntary efforts provided by work group members and interested parties. While the work group was not conducted in a consensus-driven process, input from the work group on the criteria and assistance in clarifying local land-use planning and decision-making processes were critical to development of the criteria.

DWR may update the *Urban Level of Flood Protection Criteria* in the future to reflect changes in legislative requirements, if any. DWR may also include the *Urban Level of Flood Protection Criteria* in future requirements for State of California funding eligibility.

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# Table of Contents

1.0	Introduction .....	1-1
	Legislative Background .....	1-1
	Urban Level of Flood Protection Criteria.....	1-3
	Incorporation of the Urban Levee Design Criteria by Reference .....	1-4
	Development of Criteria.....	1-6
	Additional DWR Technical Assistance.....	1-6
	California Water Code Section 9610(d) Maps .....	1-7
	Organization of This Document.....	1-7
2.0	Urban Level of Flood Protection Criteria.....	2-1
	Affected Land-Use Decisions .....	2-3
	Applicable Location .....	2-4
	Findings .....	2-6
	Substantial Evidence .....	2-9
3.0	Other Considerations.....	3-1
	Other Considerations Related to Affected Land-Use Decisions .....	3-1
	Other Considerations Related to Applicable Location .....	3-2
	Urban, Urbanizing, and Nonurbanized Areas .....	3-2
	Flood Hazard Zone.....	3-3
	Sacramento-San Joaquin Valley .....	3-4
	Sources of Flooding.....	3-4
	Other Considerations Related to Findings.....	3-6
	Effective Period .....	3-6
	Significant Physical Changes .....	3-6
	Periodic Reviews .....	3-6
	Nonurbanized Areas.....	3-8
	Other Considerations Related to Substantial Evidence.....	3-9
	Report Prepared by a Professional Civil Engineer .....	3-9
	Independent Panel of Experts .....	3-10
	Exceptions to the Urban Levee Design Criteria.....	3-10
	Imposed Conditions.....	3-11
	Adequate Progress Time Frame .....	3-11
	Adequate Progress Annual Report.....	3-12

## List of Figures

Figure 2-1. Urban Level of Flood Protection Criteria Road Map ..... 2-2

## Appendices

Appendix A – Code Sections Related to an Urban Level of Flood Protection

Appendix B – Glossary

Appendix C – Contributing Authors and Work Group Members List

# 1.0 Introduction

The California Department of Water Resources (DWR) developed the *Urban Level of Flood Protection Criteria* to fulfill the requirements outlined in the 2007 California Flood Legislation and amended by subsequent legislation; specifically, California Government Code Section 65007(n):

*“Urban level of flood protection” means the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources. “Urban level of flood protection” shall not mean shallow flooding or flooding from local drainage that meets the criteria of the national Federal Emergency Management Agency standard of flood protection.*

## Legislative Background

Since the mid-1800s, catastrophic floods have caused destruction of economic activities and loss of lives in the Central Valley. These flooding events have prompted local, State of California (State), and federal entities to construct major flood control facilities along the Sacramento and San Joaquin rivers and tributaries to alleviate flooding conditions and reduce flood damages. Many of these facilities comprise the State Plan of Flood Control (SPFC).<sup>1</sup> Despite these actions, four recent floods (1983, 1986, 1995, and 1997) have caused over \$3 billion in damage within the Central Valley, shedding light on the susceptibility of the growing communities within the Central Valley to major flood events.

The devastation and loss of life resulting from Hurricane Katrina in 2005 further raised public awareness of catastrophic storm events throughout the nation. In response, California voters passed the Disaster Preparedness and Flood Prevention Bond Act (Proposition 1E) and the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act (Proposition 84) in November 2006, authorizing the sale of nearly \$5 billion in State bonds for flood management improvements throughout the State with \$4.275 billion of this amount specifically earmarked for the

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<sup>1</sup> The State Plan of Flood Control means the State and federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Water Code Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds for which the Central Valley Flood Protection Board or the Department of Water Resources has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Water Code Section 8361.

repair and improvements to State and federal flood projects within the Central Valley.

In the latter part of 2007, the California Legislature passed and the Governor signed five interrelated bills (2007 California Flood Legislation) aimed at addressing the problems of flood protection and liability and helping direct use of the bond funds. These included Senate Bills (SB) 5 and 17, and Assembly Bills (AB) 5, 70, and 156. A sixth bill passed in 2007, AB 162, required additional consideration of flood risk in local land-use planning throughout California.

These bills, effective January 1, 2008, collectively added or amended sections in the California Government Code, Health and Safety Code, Public Resources Code, and Water Code. Together, these bills outline a comprehensive approach to improving flood management at the State and local levels, with elements to address both the chance of flooding (e.g., improvements to reduce the probability that floods will occur) and the consequences when flooding does occur. The actions by the State and local governments required under the legislation can be largely grouped into three categories: (1) develop plans to address flood control system problems in the Central Valley, (2) provide updated information on flood risks, and (3) require local land-use planning and management to consider potential flood risks.

The 2007 California Flood Legislation contains many provisions related to the requirements for incorporating flood risk considerations in land-use planning and management. Some of these provisions are to be applied statewide, while other additive provisions are applicable to lands within the Sacramento-San Joaquin Valley, as defined in California Government Code Section 65007(h), and still others are applicable to lands also within the Sacramento-San Joaquin Drainage District over which the Central Valley Flood Protection Board has direct jurisdiction.

Among the six bills in the 2007 California Flood Legislation, SB 5 contains the provisions most relevant to the *Urban Level of Flood Protection Criteria*; however, it is critical to view these requirements in the context of the 2007 California Flood Legislation in its entirety.

SB 5 (2007) defines “urban level of flood protection” as the “level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the California Department of Water Resources.” This bill requires all cities and counties within the Sacramento-San Joaquin Valley, as defined in California Government Code Section 65007(h), to make findings related to an urban level of flood protection or the national Federal Emergency



Management Agency (FEMA) standard of flood protection before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone (see California Government Code Sections 65865.5, 65962, and 66474.5, included in Appendix A).

Since 2007, there have been several legislative amendments to SB 5 regarding an urban level of flood protection. SB 1278 (2012) and AB 1965 (2012) are the most recent amendments. These amendments provided additional clarifications and directed DWR to release floodplain maps for urban areas by July 2, 2013, to provide information on the water surface elevation of flooding in the event of failure of SPFC facilities during a 200-year event (California Water Code Section 9610). The 2012 legislation also extended the original compliance schedule for cities and counties to amend their General Plans and Zoning Ordinances, which in turn starts the timeline for implementing the urban level of flood protection provisions. General Plans must be amended by no later than July 2, 2015, and Zoning Ordinances must be amended within 12 months after completion of the General Plans amendments. The urban level of flood protection requirements apply once the General Plan and Zoning Ordinance amendments become effective, but no later than July 2, 2016. These bills added to AB 1165 (2009) conditions associated with adequate progress. They also added to the SB 1070 (2010) clarification of the southern boundary of the area subject to the urban level of flood protection provisions.

## Urban Level of Flood Protection Criteria

SB 5 (2007) as amended does not specify any enforcement authority for the urban level of flood protection, but instead relies on the due-diligence of cities and counties to incorporate flood risk considerations into floodplain management and planning. However, SB 5 (2007) tasked DWR with developing criteria that cities and counties could use to make findings related to an urban level of flood protection. SB 5 (2007) also provides that cities and counties may develop their own criteria as long as it is consistent with the criteria developed by DWR. In this context, DWR developed the *Urban Level of Flood Protection Criteria* in a manner that would satisfy the legislative requirements without interfering with local land-use authority, provide reasonable details and flexibility for viability, and promote prudent floodplain management in concert with other State law provisions related to smart growth and climate change adaptation strategies.

Figure 1-1 shows the Sacramento and San Joaquin Hydrologic Regions, which are used in the California Water Plan and other water management and regulatory documents. The urban level of flood protection requirements are applicable to the Sacramento-San Joaquin Valley within the delineated hydrologic regions, as defined in California Government Code Section 65007(h). Refer to page 2-4 (Applicable Location) for criteria for determining whether the requirements apply in a particular area.

### Incorporation of the Urban Levee Design Criteria by Reference

The *Urban Level of Flood Protection Criteria* present mainly procedural criteria associated with making a finding consistent with the legislative requirements. DWR considers that an urban level of flood protection could be achieved by structural and nonstructural means, or a combination of both. Therefore, DWR's *Urban Levee Design Criteria* (2012) is incorporated by reference in the *Urban Level of Flood Protection Criteria* to provide additional engineering criteria and guidance to civil engineers and practitioners in situations where levees and floodwalls are used to provide an urban level of flood protection.

DWR completed the *Urban Levee Design Criteria* through a separate, multi-year collaborative process, building on the interim criteria developed by DWR and stakeholders for implementing early facility improvement actions with funding available through California bond measures, Propositions 1E and 84. Based on the levee design criteria of FEMA and U.S. Army Corps of Engineers (USACE), the *Urban Levee Design Criteria* also serves as engineering criteria and guidance for DWR when performing urban levee evaluations and participating in urban levee projects. The *Urban Levee Design Criteria* may be updated from time to time, reflecting changes in engineering understanding and standards or evaluation methodology. DWR may also include the *Urban Levee Design Criteria* in future requirements for State funding eligibility.



Figure 1-1. Sacramento and San Joaquin Hydrologic Regions

### Development of Criteria

Since 2010, DWR has formed two work groups to provide input to DWR in developing the *Urban Level of Flood Protection Criteria*. The first work group was convened during 2011 and 2012 with participants from cities, counties, State and federal agencies, professional organizations, and other interested parties. The resulting April 2012 draft *Urban Level of Flood Protection Criteria* was circulated for public comments, and provided to the Central Valley Flood Protection Board during the 2012 Central Valley Flood Protection Plan adoption process. To respond to additional input on the public draft criteria and subsequent legislative amendments, DWR convened a second work group to refine the *Urban Level of Flood Protection Criteria* in 2013 with a focus on improving the viability of the criteria. While the work group was not conducted in a consensus-driven process, input from the work group on the criteria and assistance in clarifying local land-use planning and decision-making processes were critical to development of the criteria.

### Additional DWR Technical Assistance

The 2007 California Flood Legislation included many requirements related to land use in different areas within the State, including the requirements of the urban level of flood protection. The corresponding provisions were incorporated in several parts of State law, including the California Government Code, Health and Safety Code, Public Resources Code, and Water Code.

The complexity of these legislative requirements and their interrelationship can be overwhelming for cities and counties with pending actions for compliance. Therefore, in cooperation with the Governor's Office of Planning and Research, California Department of Housing and Community Development, California Emergency Management Agency, Central Valley Flood Protection Board, and California Geological Survey, DWR has prepared a guidance document entitled *Implementing California Flood Legislation into Local Land Use Planning: A Handbook for Local Communities* (Handbook) (DWR, 2010). This Handbook describes how the 2007 California Flood Legislation affects city and county responsibilities related to local planning requirements, including General Plans, Development Agreements, Zoning Ordinances, tentative maps, and other actions.

In conformance with California Government Code Section 65302.9(c), DWR is developing additional guidance and/or model language to assist cities and counties in their General Plan updating process, and may update the Handbook to reflect recent legislative amendments and important flood



management policy developments (e.g., the Central Valley Flood Protection Board's adoption of the Central Valley Flood Protection Plan).

### California Water Code Section 9610(d) Maps

As directed by California Water Code Section 9610(d), DWR has developed and released floodplain maps for existing urban and adjacent urbanizing areas in the event of the failure of the SPFC facilities during flooding that has a 1-in-200 chance of occurring in any given year. The maps developed pursuant to California Water Code Section 9610(d) do not affect FEMA's National Flood Insurance Program (NFIP) implementation or the target level of flood protection for USACE's federal studies.

These maps reflect current conditions as of 2013. In some areas, these maps may not reflect all sources of flooding; cities and counties should evaluate local conditions to determine if the maps are sufficient to support a finding related to an urban level of flood protection. DWR will make the tools, data, and relevant information used in developing these maps available to cities and counties to develop floodplain maps or for other applications.

### Organization of This Document

This document is organized into the following sections:

- **Section 1** – Provides background for development of criteria.
- **Section 2** – Provides DWR's minimum criteria for cities and counties to comply with urban level of flood protection requirements.
- **Section 3** – Provides other considerations and additional information for cities or counties to consider in conjunction with the criteria presented in Section 2 when making findings related to the urban level of flood protection or the national FEMA standard of flood protection.
- **Appendix A** – Contains relevant code sections related to an urban level of flood protection.
- **Appendix B** – Contains a glossary of definitions used in this document.
- **Appendix C** – Lists contributing authors and work group members.

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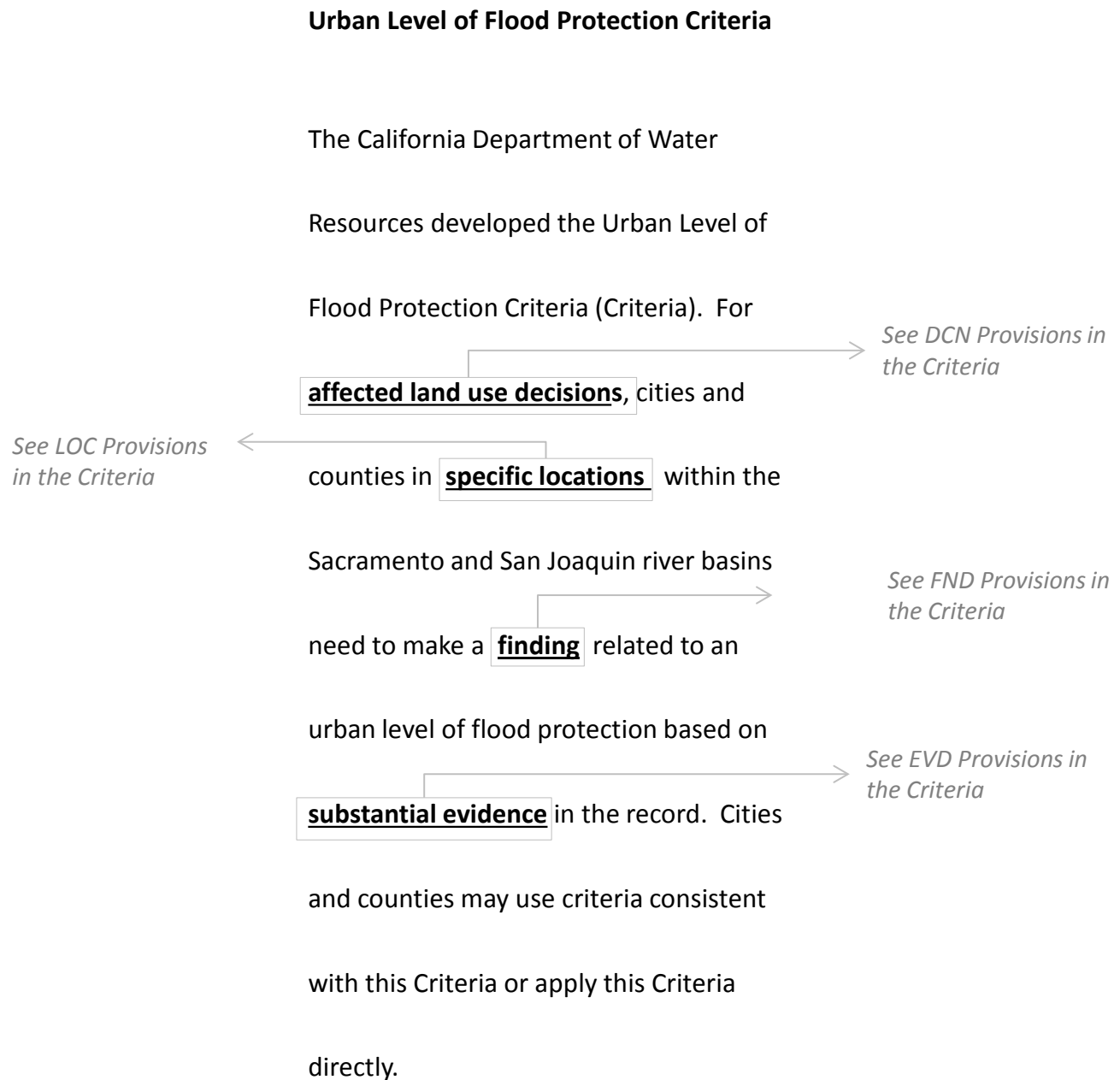
## 2.0 Urban Level of Flood Protection Criteria

This section provides DWR's minimum criteria for cities and counties to comply with the urban level of flood protection requirements.

DWR has developed these criteria to aid local agencies in determining the level of flood protection of their communities, and to aid in guiding planning efforts to achieve an urban level of flood protection where required. In preparing these criteria, DWR has applied its experience and expertise in flood management and planning to address the statewide concerns related to flood protection that were delineated by the California Legislature in 2007. As such, these criteria reflect DWR's considered view regarding not only physical flood protection, but also administrative and procedural measures reasonably necessary to reduce flood risks. For example, where lives and/or significant assets are at risk, DWR does not believe that it is reasonable for decisions to be based upon the opinion of a single engineer, and for that reason has included the expectation that specific flood projects be peer reviewed by expert panels, which is intended to produce better-informed decisions. Flood protection has historically been, and will continue to be, implemented at the local level and, where appropriate, with the assistance of State and federal agencies. These criteria are intended to provide a baseline upon which those local efforts can be developed.

DWR has organized these criteria by groups, covering the pending land-use decision (DCN), applicable locations (LOC), findings (FND), and supporting evidence (EVD). Figure 2-1 shows a road map regarding how these criteria may be applied. As stated above, this section contains the minimum set of criteria that DWR deems reasonable and necessary for supporting a finding related to an urban level of flood protection. Cities and counties can use either the DWR criteria or other criteria as long as it is consistent with the DWR criteria.

To assist cities and counties in making a finding related to an urban level of flood protection, DWR also provides additional recommendations and supplemental information for consideration by cities and counties in Section 3.



**Figure 2-1. Urban Level of Flood Protection Criteria Road Map**

## Affected Land-Use Decisions

This subsection provides the criteria to determine whether the pending land-use decision is affected by the urban level of flood protection requirements.

**DCN:** Cities and counties shall make a finding related to an urban level of flood protection or the national FEMA standard of flood protection for any of the following pending land-use decisions when located in the applicable geographic areas (*California Government Code Sections 65865.5, 65962, and 66474.5*):

- Entering into a Development Agreement for all types of property development
- Approving a discretionary permit or other discretionary entitlement for all development projects<sup>2</sup>
- Approving a ministerial permit for all projects that would result in construction of a new residence
- Approving a tentative map consistent with the Subdivision Map Act<sup>3</sup> for all subdivisions
- Approving a Parcel Map for which a tentative map is not required consistent with the Subdivision Map Act<sup>4</sup> for all subdivisions

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<sup>2</sup> As defined in California Government Code Section 65928

<sup>3</sup> California Government Code Section 66410

<sup>4</sup> California Government Code Section 66410

## Applicable Location

This subsection provides the criteria to determine whether a property, development project, or subdivision is located in the applicable geographic area and therefore subject to either the urban level of flood protection or national FEMA standard of flood protection requirements.

**LOC-1:** A property, development project, or subdivision located in the following geographic areas is subject to the requirement of making a finding related to an urban level of flood protection when all the following conditions apply (*California Government Code Sections 65865.5, 65962, and 66474.5*):

- It is located within an urban area that is a developed area, as defined by Code of Federal Regulations Title 44, Section 59.1, with 10,000 residents or more<sup>5</sup>, or an urbanizing area that is a developed area or an area outside a developed area that is planned or anticipated to have 10,000 residents or more within the next 10 years.<sup>6</sup>
- It is located within a flood hazard zone that is mapped as either a special hazard area or an area of moderate hazard on FEMA's official (i.e., effective) Flood Insurance Rate Map (FIRM) for the NFIP.<sup>7</sup>
- It is located within the Sacramento-San Joaquin Valley.<sup>8</sup>
- It is located within an area with a potential flood depth above 3.0 feet, from sources of flooding other than localized conditions that may occur anywhere in a community, such as localized rainfall, water from stormwater and drainage problems, and water from temporary water and wastewater distribution system failure.
- It is located within a watershed with a contributing area of more than 10 square miles.

**LOC-2:** A property, development project, or subdivision located in the applicable geographic areas is subject to the requirement of making a finding related to the national FEMA standard of flood protection when all the following conditions apply (*California Government Code Sections 65865.5, 65962, and 66474.5*):

- It is located outside of an urban area or urbanizing area.<sup>9</sup>

<sup>5</sup> California Government Code Section 65007(l)

<sup>6</sup> California Government Code Section 65007(m)

<sup>7</sup> California Government Code Section 65007(d)

<sup>8</sup> California Government Code Section 65007(h)

- It is located within a flood hazard zone that is mapped as either a special hazard area or an area of moderate hazard on FEMA's official (i.e., effective) FIRM for the NFIP.<sup>10</sup>
- It is located within the Sacramento-San Joaquin Valley.<sup>11</sup>

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<sup>9</sup> California Government Code Section 65007(f)

<sup>10</sup> California Government Code Section 65007(d)

<sup>11</sup> California Government Code Section 65007(h)

## Findings

This subsection provides DWR's criteria that define various findings that cities and counties can make under the urban level of flood protection requirements.

**FND-1:** Cities and counties shall make a finding related to an urban level of flood protection or the national FEMA standard of flood protection based on substantial evidence in the record for one of the following before approving any affected land-use decisions:

- That the facilities of the SPFC or other flood management facilities provide the required level of flood protection to the property, development project, or subdivision (*California Government Code Sections 65865.5, 65962, and 66474.5*).
- That the imposed conditions by the city or county on a property, development project, or subdivision are sufficient to provide the required level of flood protection (*California Government Code Sections 65865.5, 65962, and 66474.5*).
- That the local flood management agency has made adequate progress as defined in California Government Code Section 65007(a) on the construction of a flood protection system that will result in flood protection equal to or greater than the required level of flood protection. For urban and urbanizing areas protected by SPFC levees, the urban level of flood protection shall be achieved by 2025 (*California Government Code Sections 65865.5, 65962, and 66474.5*).
- That for urban and urbanizing areas, the property in an undetermined risk area has met the urban level of flood protection based on substantial evidence in the record. An undetermined risk area shall be presumed to be at risk during flooding that has a 1-in-200 chance of occurring in any given year unless deemed otherwise by the SPFC, an official NFIP rate map issued by FEMA, or a finding made by a city or county based on a determination of substantial evidence by a local flood agency (*California Government Code Sections 65865.5 and 65302.9(b)*).

**FND-2:** Cities and counties can rely on a previous finding for subsequent approvals related to an urban level of flood protection when the previous finding satisfies any of the following conditions:

- The previous finding is effective (see FND-3).



- The previous finding is for actions that have sequential dependency to the proposed action on the property, development project, or subdivision under consideration.
- Cities and counties find no significant changes related to flood hazards, facility conditions, and other considerations that contributed to the substantial evidence in the record supporting the previous finding.

**FND-3:** The effective period for a finding related to an urban level of flood protection is conditioned upon the supporting reason(s) and additional standard of care necessary to protect the integrity of the finding:

- A finding based on flood management facilities providing the required protection has an effective period of 20 years or until the finding is superseded, whichever is sooner, provided that a periodic review of the finding is performed every 5 years.
- A finding based on imposed conditions cannot be used to support other findings.
- A finding based on adequate progress has an effective period of 10 years or until the finding is superseded, whichever is sooner, provided that the adequate progress requirements per California Government Code Section 65007(a) are met.

**FND-4:** When conducting a periodic review of a finding based on flood management facilities providing the required protection, cities and counties shall include all of the following requirements, at a minimum:

- A report prepared by a Professional Civil Engineer registered in California to document any changes in physical conditions and structural integrity of flood management facilities since the original finding or most recent periodic review, if any.
- A written statement from a Professional Civil Engineer registered in California to either confirm that the flood management facilities continue to provide an urban level of flood protection, or identify a remediation plan that will be fully implemented within the next 5 years such that the flood management facilities will provide an urban level of flood protection.
- When necessary, the remediation plan shall include interim measures to address public safety during repair, and corrective actions with a schedule, estimate of costs, funding, and entities responsible for implementation along with their written concurrence.

## Urban Level of Flood Protection Criteria

**FND-5:** Cities and counties shall follow existing criteria, standards, and practices when making a finding related to the national FEMA standard of flood protection.

**FND-6:** Cities and counties shall ensure adequate public access to their findings related to an urban area of flood protection and the national FEMA standard of flood protection.

## Substantial Evidence

This subsection provides DWR's criteria for cities or counties to determine whether the minimum requirements are being met to satisfy the appropriate standard of care that is applicable to the potential risks and consequences for the geographic area. The following criteria are considered by DWR to be necessary for reasonable and responsible decision making.

**EVD-1:** Substantial evidence in the record to support a finding related to an urban level of flood protection based on flood management facilities providing the required level of flood protection shall include the following, at a minimum:

- A report prepared by a Professional Civil Engineer registered in California to document the data and analyses for demonstrating that the property, development project, or subdivision has an urban level of flood protection.
- A report by an Independent Panel of Experts on the review of the report prepared by the Professional Civil Engineer.
- A response by the Professional Civil Engineer to the comments from the Independent Panel of Experts.
- Any additional data and information that cities or counties use to make the finding.

**EVD-2:** Substantial evidence in the record to support a finding related to an urban level of flood protection based on imposed conditions shall include the following, at a minimum:

- A list of the conditions imposed by the city or county that is consistent with existing codes and regulations, responsible entities for implementing the conditions, and a plan and schedule by which the imposed conditions will be met.
- A report prepared by a Professional Civil Engineer registered in California to document the data and analyses for demonstrating the imposed conditions will result in the property, development project, or subdivision having an urban level of flood protection.
- Any additional data and information that cities or counties use to make the finding.

- A written statement that the developer, subdivider, permittee, or their agent must satisfy the conditions imposed on or before the time of final inspection or the issuance of Certificate of Occupancy for the building to which the conditions apply.

**EVD-3:** Substantial evidence in the record to support a finding related to an urban level of flood protection based on adequate progress on the construction of a flood protection system shall include the following, at a minimum:

- A report prepared by the local flood management agency demonstrating adequate progress as defined in California Government Code Section 65007(a).
- A report prepared by a Professional Civil Engineer registered in California to document the data and analyses for demonstrating the property, development project, or subdivision will have an urban level of flood protection at the time when the flood protection system is completed.
- A report by an Independent Panel of Experts on the review of the report prepared by the Professional Civil Engineer.
- A response by the Professional Civil Engineer to the comments from the Independent Panel of Experts.
- The most recent annual report prepared by the local flood management agency that was submitted to the Central Valley Flood Protection Board documenting the efforts in working toward completion of the flood protection system.
- Any additional data and information that cities or counties use to make the finding.

**EVD-4:** Substantial evidence in the record to support a finding related to an urban level of flood protection based on other measures for an undetermined risk area shall include the following, at a minimum:

- A report prepared by a Professional Civil Engineer registered in California to document the data and analyses for demonstrating the property, development project, or subdivision will have an urban level of flood protection when the measures are implemented.
- Any additional data and information that cities or counties use to make the finding.

**EVD-5:** Cities and counties shall commission an Independent Panel of Experts with the following characteristics to review the report prepared by a Professional Civil Engineer registered in California when flood management facilities, including levees and floodwalls, are used to provide the urban level of flood protection:

- The Independent Panel of Experts shall be consistent with USACE Engineer Circular (EC) 1165-2-214 dated, December 15, 2012, following the procedure for Type II Independent External Peer Review to the extent applicable.
- For flood management facilities providing protection to 500 residents or more, the Independent Panel of Experts shall consist of at least three experts with different expertise, including at least one with expertise in hydrology and hydraulics, and at least two with expertise in design and construction of facilities relevant to those under review.
- For flood management facilities providing protection to less than 500 residents, cities and counties may reduce the number of the experts while providing necessary expertise for the review.

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## 3.0 Other Considerations

This section contains other considerations and additional information for cities or counties to consider in conjunction with the above criteria when making findings related to the urban level of flood protection or the national FEMA standard of flood protection. All sources of information cited are included to provide cities or counties with further guidance on implementing the criteria, but may be subject to change over time.

### Other Considerations Related to Affected Land-Use Decisions

For clarity, DWR provides the following information on the DCN criterion related to tentative maps and parcel maps for which a tentative map was not required. The Subdivision Map Act specifies two types of subdivision maps, depending on the number and size of the lots being created, both of which are subject to the urban level of flood protection requirements. Because there are situations when only a parcel map is needed (i.e., no tentative or final map is required by State law), California Government Code Section 66474.5 specifies that under these circumstances, the urban level of flood protection requirements still apply. To be consistent with land-use planning terminology and practices and to avoid confusion, the DCN criterion in Section 2 specifically states that both tentative maps and parcel maps for which a tentative map was not required are subject to the urban level of flood protection finding requirements.

## Other Considerations Related to Applicable Location

DWR provides the following guidance for cities or counties to consider when determining whether the property, development project, or subdivision is within the geographic area subject to either the urban level of flood protection or national FEMA standard of flood protection requirements. These recommendations apply to urban, urbanizing, and nonurbanized areas as the information used to support the LOC determinations are the same.

### Urban, Urbanizing, and Nonurbanized Areas

Consistent with current FEMA practice,<sup>12</sup> to develop population estimates or projections, information that cities or counties may reference includes, but is not limited to, the following:

- California Department of Finance population projections and estimates produced by the Demographics Research Unit
- Latest General Plans within the area being considered
- Specific Plans
- Regional planning “blueprints”
- Regional Housing Need Allocations (RHNA)

Recognizing that there exists multiple sources of information with different development and update cycles, cities and counties should use the best available information to identify developed areas and develop population estimates and projections to determine if an area is urban, urbanizing, or nonurbanized, according to the definitions in California Government Code Section 65007, paragraphs (f), (l), and (m). Note that neither the definition for urban, urbanizing, nor nonurbanized areas is tied to the jurisdictional boundary of a city or county.

Any referenced sources of information should be publicly available and developed through a credible process to be acceptable for use as the basis of a finding. The determination by cities and counties of whether the area under consideration is urban, urbanizing, or nonurbanized should detail the selected data and reasons for selection.

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<sup>12</sup> For the FEMA NFIP, the developed area criterion typically only occurs where an AR Zone is created, as specified in 44 CFR 65.14(e)(1)(iv). An AR Zone is a zone to be used when a flood control project is deficient, but is in the process of being restored and has passed certain key milestones toward that restoration. FEMA requires that communities submit a map of developed areas when applying for AR Zone status.

## Flood Hazard Zone

As defined by California Government Code Section 65007(d), flood hazard zones are limited to areas subject to flooding that are delineated as either a special hazard area or an area of moderate hazard on an official FIRM issued by FEMA. Thus, if an official<sup>13</sup> FIRM does not exist at the location of a prospective property, development project, or subdivision, then there is no requirement to make a finding related to an urban level of flood protection or national FEMA standard of flood protection.

A community's official (i.e., effective) FIRM, published by FEMA, may be used to determine if a property, development project, or subdivision is within a flood hazard zone. Note that the current NFIP process recommends that local governments use newly updated flood hazard information, even before official FEMA maps are updated.

If the city or county has reason to suspect that a property, development project, or subdivision may be located within a flood hazard zone, DWR recommends gathering and considering other potential sources of flood hazard data before the city or county makes their decision related to the pending land-use decision.

Other potential data sources that could help a city or county determine whether the prospective property, development project, or subdivision may be at risk of flooding can include, but are not limited to the following:

- A preliminary FIRM if an official FIRM is under development.
- Information about flood hazards available from USACE at <http://www.nfrmp.us/>.
- Designated floodway maps available from the Central Valley Flood Protection Board at <http://www.cvfpb.ca.gov/maps/index.cfm>.
- Awareness Floodplain Mapping Program maps available from DWR at [http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness\\_floodplain\\_maps/](http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/).
- Best Available Maps prepared pursuant to California Water Code Section 9610 from DWR and available at [http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best\\_available\\_maps/](http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/).

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<sup>13</sup> An effective FIRM is considered an official FIRM.

- Historical data on flooding, including locally prepared maps of areas subject to flooding, areas vulnerable to flooding after wildfires, and sites that have been repeatedly damaged by flooding.
- DWR 200-year floodplain maps developed in accordance with California Water Code Section 9610 for existing urban and adjacent urbanizing areas affected by the failure of SPFC facilities. These maps reflect current conditions as of 2013. In some areas, these maps may not reflect all sources of flooding; cities and counties should evaluate local conditions to determine if the maps are sufficient to support a finding related to an urban level of flood protection. DWR will make available the tools, data, and relevant information used in developing these maps to aid cities and counties in developing floodplain maps.
- State, federal, and local agencies responsible for flood protection, including special districts and local offices of emergency services.

### **Sacramento-San Joaquin Valley**

Cities and counties should consider the geographic applicability of the property, development project, or subdivision using the following definition (*California Government Code Section 65007(h)*):

*Any lands in the bed or along or near the banks of the Sacramento River or San Joaquin River, any of their tributaries or connected therewith, upon any land adjacent thereto, within any of the overflow basins thereof, or upon any land susceptible to overflow therefrom.*

The urban level of flood protection or national FEMA standard of flood protection requirements should be applied to any portions of land located within the Sacramento-San Joaquin Valley that meet this definition.

California Government Code Section 65007(h) further excludes the Tulare Lake Hydrologic Region, as defined in the California Water Plan Update 2009. For this reason, the map of the Sacramento and San Joaquin Hydrologic Regions was provided in Section 1 to provide context. That map does not represent the Sacramento-San Joaquin Valley, which under this definition is more limited in scope than the Sacramento and San Joaquin Hydrologic Regions.

### **Sources of Flooding**

The law provides for the exclusion of certain sources of flooding when determining whether the urban level of flood protection requirements apply. Shallow flooding and flooding from local drainage that meets the

criteria of the national FEMA standard of flood protection are excluded. These exclusions are consistent with current FEMA practice.

For purposes of these criteria, flooding that is 3.0 feet or less from sources of flooding other than local drainage (i.e., localized conditions that may occur anywhere in a community, such as localized rainfall, water from stormwater and drainage problems, and water from temporary water and wastewater distribution system failure) are excluded from these requirements. DWR selected a depth of 3.0 feet as a threshold to be consistent with related laws and regulations, such as the California Health and Safety Code Section 50465. With stated reasons, cities and counties may choose to use a 100- or 200-year event as the referenced event when considering potential flood depth. The flexibility will allow cities and counties to balance local conditions and available information. In general, cities and counties should consider using a 200-year event as the referenced event, except when the property, development project, or subdivision under consideration is not protected by flood management facilities.

Additionally, a property, development project, or subdivision located within a watershed with a contributing area of more than 10 square miles is excluded from urban level of flood protection requirements. Cities and counties may refer to the Watershed Boundary Dataset<sup>14</sup> to help define the watershed associated with the property, development project, or subdivision.

Any referenced sources of information should be publicly available, and developed through a credible process to be acceptable for use as the basis of a finding. The determination of whether the area under consideration is solely subject to shallow flooding or from local drainage that meets the criteria of the national FEMA standard of flood protection should detail the selected data and reasons for selection.

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<sup>14</sup> The United States Department of Agriculture-Natural Resources Conservation Service, the United States Geological Survey, and the Environmental Protection Agency created the Watershed Boundary Dataset from a variety of sources from each state and aggregated the dataset into a standard national layer for use in strategic planning and accountability. Available at: <http://datagateway.nrcs.usda.gov>.

## Other Considerations Related to Findings

The following provides additional guidance that cities or counties should consider when making a new finding or using a previous finding for subsequent approvals related to the urban level of flood protection.

### Effective Period

The effective period of a finding is only applicable if the city or county plans to rely on a previous finding for subsequent approvals. Setting an effective period is necessary because it is unreasonable to assume that a previous finding for a geographical area remains effective in perpetuity, considering that conditions, information, and assumptions can change over time and affect the level of flood protection provided for a particular area. Factors that may be considered by cities and counties in establishing the effective period of a finding, not to exceed 20 years, include the following:

- The need for cities or counties to have a degree of certainty in planning for development in a flood hazard zone.
- The need to provide continued public safety by periodically reevaluating flood management systems when considering changing engineering standards and practice, changing hydrology, sea-level rise, climate change, physical changes in the system, system performance, and other factors.

### Significant Physical Changes

Potentially significant changes may include a physical change within the flood management system that reduces the level of flood protection for an area under consideration by 20 percent or more below an urban level of flood protection (e.g., 160-year level of flood protection) and results in a 6-inch or greater change in channel water surface elevation or flood depth. The city or county is encouraged to contact their local flood management agency if any significant physical changes are identified.

### Periodic Reviews

If cities or counties plan on using a previous finding to make subsequent approvals, cities and counties should conduct periodic reviews of operations and maintenance of the flood management facilities because levees and floodwalls can be damaged and degrade quickly if not properly operated and maintained or during a high-water event. DWR recommends that these reviews occur every 5 years, which reflects a reasonable balance between the 90-day inspections required by the USACE Operations and Maintenance Manual (required by the *Urban Levee Design Criteria* [DWR, 2012] for levees and floodwalls), and the 20-year effective period. Five



years is also coincident with the periodic inspections of the USACE Levee Safety Program.

During this periodic review, a Professional Civil Engineer registered in California should make an informed recommendation whether:

- (1) The levee(s) or floodwall(s) and their appurtenant structures providing an urban level of flood protection are being adequately operated and maintained.
- (2) The integrity of the levee(s) or floodwall(s) and their appurtenant structures have not degraded to the point that an urban level of flood protection no longer exists, as defined at the beginning of the effective period of the previous finding.

The city or county should update the finding within 6 months of the Professional Civil Engineer's determination and make the Professional Civil Engineer's determination and accompanying report available publicly.

When damage has occurred or maintenance inadequacies have been identified that undermine an urban level of flood protection, a Professional Civil Engineer registered in California should either:

- (1) Identify whether the damage or maintenance inadequacies have compromised the levee(s) or floodwall(s) and their appurtenant structures, and to what extent, as measured in terms of level of flood protection following either current criteria or the criteria in use at the beginning of the effective period of the finding, and assuming that the criteria result in protection against a 1-in-200 annual chance flood (i.e., 200-year level of flood protection); or,
- (2) Provide a written statement that, in his/her judgment, the damage that occurred or the maintenance inadequacies identified since a finding was made do not warrant that the previous finding is no longer suitable for making subsequent approvals, and the rationale for this judgment.

The previous finding may be used for subsequent approvals if interim measures are in place to provide an opportunity to address minor (fixable) issues within given time frames. In this case, the city or county should consider updating the previous finding to be used for subsequent approvals with the following information:

- The nature and extent of the damage and/or maintenance inadequacies identified

## Urban Level of Flood Protection Criteria

- A plan, schedule, and cost estimate for remediating the damage and/or maintenance inadequacies
- The funding source(s) and amount(s) available for remediating the damage and/or maintenance inadequacies
- Any additional measures that will be taken to ensure public safety while the damage and/or maintenance inadequacies are being addressed
- The entity or entities responsible for performing the damage remediation or additional measures, along with written concurrence from each entity accepting its responsibilities to help restore an urban level of flood protection

The plan and schedule should be proportionate to the severity of the damage or maintenance inadequacies and provide for rapid remediation of the damage or maintenance inadequacies that are temporarily resulting in a lower level of flood protection than the 200-year level of flood protection standard.

Note that dams subject to oversight by the California Division of Safety of Dams, Federal Energy Regulatory Commission, USACE, or U.S. Department of the Interior, Bureau of Reclamation, need not be included in the scope of the periodic review. Under California Water Code Section 6026, cities or counties are not allowed to supervise the operations and maintenance of these dams.

Enactment of new laws or regulations may trigger the need for a new finding in compliance with those new laws or regulations. DWR will issue an advisory if new laws and regulations are enacted or pending that may reduce the effective period of a finding, causing that previous finding to no longer be suitable for making subsequent approvals.

### **Nonurbanized Areas**

Note that the requirements related to the national FEMA standard of flood protection are the same as is currently practiced, except that cities and counties are now required to make formalized findings on the level of flood protection that a given area has.

## Other Considerations Related to Substantial Evidence

The following recommendations provide additional guidance that cities and counties should consider using when determining if there is substantial evidence in the record that flood management facilities provide or will provide an urban level of flood protection for the applicable geographic area.

### **Report Prepared by a Professional Civil Engineer**

The scope of each land-use decision may vary and could cover a single parcel or a large area. Typically, flood management structures provide protection to a broad area; therefore, while the pending land-use decision may have a limited scope, the integrity of the flood protection facility should be evaluated by a Professional Civil Engineer in a larger context. Therefore, to the extent consistent with the criteria, cities and counties may leverage any previous findings that cover a large geographic scope for use in subsequent approvals on a smaller scale.

The report prepared by a Professional Civil Engineer registered in California should provide the following information as evidence that an urban level of flood protection exists or will exist for the area under consideration:

- A list of the flood management facilities utilized in providing an urban level of flood protection, including, but not limited to, SPFC facilities.
- The location of the flood management facilities utilized in providing an urban level of flood protection.
- The entities that operate and maintain the flood management facilities utilized in providing an urban level of flood protection.
- A list of, and consideration of, reports, evaluations, inspections, and performance history of the flood management facilities utilized in providing an urban level of flood protection since the previous finding, if any, was made.
- The responses to the Independent Panel of Experts.

For locations that may be affected by multiple sources of flooding, cities or counties may consider options for compiling the substantial evidence in the record in segments. For example, the city or county may elect to have a Professional Civil Engineer's report developed demonstrating that the flood

management facilities for a source (or sources) of flooding meet the *Urban Levee Design Criteria* (DWR, 2012).

### **Independent Panel of Experts**

The consequences of levee and/or floodwall failure in urban and urbanizing areas can be too severe to completely rely on the judgment of a single engineer or engineering firm for designing or evaluating a levee system and determining that it meets criteria for an urban level of flood protection. Hence, review by an Independent Panel of Experts is necessary and required in situations where flood management facilities are used to provide the required level of flood protection.

DWR only requires an Independent Panel of Experts when flood management facilities are used to provide protection to 500 residents or more. This threshold was developed as a reasonable balance between the cost for peer review and the cost of the flood management facilities being reviewed.

The report by an Independent Panel of Experts should consider the assertions made in the Professional Civil Engineer's report and determine whether:

- An urban level of flood protection from the identified sources of flooding exists or will exist for the area under consideration, or
- The subject flood management facilities meet the *Urban Levee Design Criteria* (DWR, 2012).

If the panel does not concur with the assertions made in the Professional Civil Engineer's report, the report by the Independent Panel of Experts should state the reason(s) for not concurring.

### **Exceptions to the Urban Levee Design Criteria**

Because it is infeasible to establish engineering criteria that will be applicable to all situations, exceptions from the *Urban Levee Design Criteria* (DWR, 2012) may be appropriate in certain situations. Exceptions to the criteria should be clearly identified and described, and the justifications for their use detailed in the Professional Civil Engineer's report. The Independent Panel of Experts should evaluate these exceptions in performing its peer review and include their opinions on the appropriateness of the identified exception in their report. When it is unclear whether criteria are met or an exception is needed, on request of the Professional Civil Engineer registered in California, city, or county, DWR

may provide a written opinion indicating whether an exception to the *Urban Levee Design Criteria* (DWR, 2012) is warranted.

### **Imposed Conditions**

The law does not specify the types of imposed conditions that cities and counties may use. If the city or county chooses to use elevation as an imposed condition to approve one of the affected land-use decisions, DWR recommends the use of freeboard to account for uncertainty associated with determining the 200-year flood level. Cities and counties should consider providing freeboard because of the following:

- Significant flood damage occurs to buildings before the flood elevation reaches the elevation of the finished floor.
- Wind and boat wakes will create waves that exceed the average flood elevation, causing damage.
- Engineers cannot know the exact elevation of the 200-year water surface—it is a calculated estimate that may be too low.
- Any flow obstruction in the nearby vicinity could increase the flood elevation.
- Upstream development and climate change (and in some cases, sea-level rise) may increase future flood elevations during the building's useful life.

For information on freeboard considerations, refer to the California Code of Regulations Title 23 for areas within the Central Valley Flood Protection Board's jurisdiction and the California Code of Regulations Title 24 (California Building Code) for all other areas.

### **Adequate Progress Time Frame**

Conditions for demonstrating adequate progress vary, depending on whether an area under consideration is protected by project levees, which are levees that are part of the facilities of the SPFC. Adequate progress can no longer be used to make a finding after 2025 if the area is protected by project levees; areas not protected by project levees may continue to use adequate progress after 2025.

To determine if the area under consideration is protected by project levees, levee flood protection zone (LFPZ) maps may be used. DWR has developed LFPZ maps, as required by California Water Code Section 9130, which delineate areas that currently receive protection from project

levees.<sup>15</sup> Note that the LFPZ maps are subject to updates resulting from changes to SPFC facilities. Similarly, project levees may be added, modified, or removed from the SPFC, affecting the availability of adequate progress toward providing protection equal to or greater than an urban level of flood protection after 2025 for some areas. Cities and counties are encouraged to notify DWR if they believe an LFPZ map affecting their area of jurisdiction is out of date.

Cities and counties may also refer to the *SPFC Descriptive Document* (DWR, 2010) which provides a complete inventory and description of the SPFC as defined in Section 9110(f) of the California Water Code:

*“State Plan of Flood Control” means the state and federal flood control works, lands, programs, plans, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to Article 2 (commencing with Section 12648) of Chapter 2 of Part 6 of Division 6 for which the board or the department has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Section 8361.*

The *SPFC Descriptive Document* (DWR, 2010) may be updated as needed. Contact the DWR Division of Flood Management for additional information.

### Adequate Progress Annual Report

California Government Code Section 65007(a)(5) requires a report on the efforts in working toward completion of the flood protection system to be submitted to the Central Valley Flood Protection Board annually. The annual progress report should be publicly available and describe an attainable, reasonable approach toward providing protection equal to or greater than an urban level of flood protection for the geographic area. Cities and counties should consider including the following in their annual progress report:

- Location of a property, development project, or subdivision with respect to LFPZs and any other flood management facilities, including the boundaries of the area under consideration for the property, development project, or subdivision.
- Data used and references for the data used.

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<sup>15</sup> Available at [http://www.water.ca.gov/floodmgmt/lra/mo/fmb/fes/levee\\_protection\\_zones.cfm](http://www.water.ca.gov/floodmgmt/lra/mo/fmb/fes/levee_protection_zones.cfm). Contact the DWR Division of Flood Management for additional information.

- Critical features of the flood protection system that are under construction, which will help establish an urban level of flood protection, and each critical feature that is progressing, as indicated by actual expenditure of construction funds.
- Total project scope, schedule, and cost of the completed flood protection system.
- Identified revenues to fund each year of project implementation.
- History of revenue allocations and expenditures, including the current year.
- Any delay in State funding appropriation consistent with an agreement between a State agency and a local flood management agency.
- Other reasons for delay in completion of the flood protection system for which the city and county are not responsible.

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# Appendix A

## Code Sections Related to an Urban Level of Flood Protection

The full text of relevant code sections related to an urban level of flood protection is included in this appendix as a reference.

### California Government Code Section 65007

As used in this title,<sup>1</sup> the following terms have the following meanings, unless the context requires otherwise:

(a) "Adequate progress" means all of the following:

(1) The total project scope, schedule, and cost of the completed flood protection system have been developed to meet the appropriate standard of protection.

(2) (A) Revenues that are sufficient to fund each year of the project schedule developed in paragraph (1) have been identified and, in any given year and consistent with that schedule, at least 90 percent of the revenues scheduled to be received by that year have been appropriated and are currently being expended.

(B) Notwithstanding subparagraph (A), for any year in which state funding is not appropriated consistent with an agreement between a state agency and a local flood management agency, the Central Valley Flood Protection Board may find that the local flood management agency is making adequate progress in working toward the completion of the flood protection system.

(3) Critical features of the flood protection system are under construction, and each critical feature is progressing as indicated by the actual expenditure of the construction budget funds.

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<sup>1</sup> This title refers to Government Code §65000. This title may be cited as the "Planning and Zoning Law."

(4) The city or county has not been responsible for a significant delay in the completion of the system.

(5) The local flood management agency shall provide the Department of Water Resources and the Central Valley Flood Protection Board with the information specified in this subdivision sufficient to determine substantial completion of the required flood protection. The local flood management agency shall annually report to the Central Valley Flood Protection Board on the efforts in working toward completion of the flood protection system.

(b) "Central Valley Flood Protection Plan" has the same meaning as that set forth in Section 9612 of the Water Code.

(c) "Developed area" has the same meaning as that set forth in Section 59.1 of Title 44 of the Code of Federal Regulations.

(d) "Flood hazard zone" means an area subject to flooding that is delineated as either a special hazard area or an area of moderate hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency. The identification of flood hazard zones does not imply that areas outside the flood hazard zones, or uses permitted within flood hazard zones, will be free from flooding or flood damage.

(e) "National Federal Emergency Management Agency standard of flood protection" means the level of flood protection that is necessary to withstand flooding that has a 1-in-100 chance of occurring in any given year using criteria developed by the Federal Emergency Management Agency for application in the National Flood Insurance Program.

(f) "Nonurbanized area" means a developed area or an area outside a developed area in which there are fewer than 10,000 residents that is not an urbanizing area.

(g) "Project levee" means any levee that is part of the facilities of the State Plan of Flood Control.

(h) "Sacramento-San Joaquin Valley" means lands in the bed or along or near the banks of the Sacramento River or San Joaquin River, or their tributaries or connected therewith, or upon any land adjacent thereto, or within the overflow basins thereof, or upon land susceptible to overflow therefrom. The Sacramento-San Joaquin

Valley does not include lands lying within the Tulare Lake basin, including the Kings River.

(i) "State Plan of Flood Control" has the same meaning as that set forth in subdivision (j) of Section 5096.805 of the Public Resources Code.

(j) "Tulare Lake basin" means the Tulare Lake Hydrologic Region as defined in the California Water Plan Update 2009, prepared by the Department of Water Resources pursuant to Chapter 1 (commencing with Section 10004) of Part 1.5 of Division 6 of the Water Code.

(k) "Undetermined risk area" means an urban or urbanizing area within a moderate flood hazard zone, as delineated on an official flood insurance rate map issued by the Federal Emergency Management Agency, which has not been determined to have an urban level of protection.

(l) "Urban area" means a developed area in which there are 10,000 residents or more.

(m) "Urbanizing area" means a developed area or an area outside a developed area that is planned or anticipated to have 10,000 residents or more within the next 10 years.

(n) "Urban level of flood protection" means the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources. "Urban level of flood protection" shall not mean shallow flooding or flooding from local drainage that meets the criteria of the national Federal Emergency Management Agency standard of flood protection.

## **California Government Code Section 65302.9**

(a) Within 24 months of July 2, 2013, each city and county within the Sacramento-San Joaquin Valley shall amend its general plan to contain all of the following:

(1) (A) The data and analysis contained in the Central Valley Flood Protection Plan pursuant to Section 9612 of the Water Code, including, but not limited to, the locations of the facilities of the State Plan of Flood Control and the locations of the real property protected by those facilities.

(B) The locations of flood hazard zones, including, but not limited to, locations mapped by the Federal Emergency Management Agency Flood Insurance Rate Map or the Flood Hazard Boundary Map, locations that participate in the National Flood Insurance Program, locations of undetermined risk areas, and locations mapped by a local flood agency or flood district.

(2) Goals, policies, and objectives, based on the data and analysis identified pursuant to paragraph (1), for the protection of lives and property that will reduce the risk of flood damage.

(3) Feasible implementation measures designed to carry out the goals, policies, and objectives established pursuant to paragraph (2).

(b) An undetermined risk area shall be presumed to be at risk during flooding that has a 1-in-200 chance of occurring in any given year unless deemed otherwise by the State Plan of Flood Control, an official National Flood Insurance Program rate map issued by the Federal Emergency Management Agency, or a finding made by a city or county based on a determination of substantial evidence by a local flood agency.

(c) To assist each city or county in complying with this section, the Central Valley Flood Protection Board, the Department of Water Resources, and local flood agencies shall collaborate with cities or counties by providing them with information and other technical assistance.

(d) In implementing this section, each city and county, both general law and charter, within the Sacramento-San Joaquin Valley, shall comply with this article, including, but not limited to, Sections 65300.5, 65300.7, 65300.9, and 65301.

(e) Notwithstanding any other law, this section shall apply to all cities, including charter cities, and counties within the Sacramento-San Joaquin Valley. The Legislature finds and declares that flood protection in the Sacramento and San Joaquin Rivers drainage areas is a matter of statewide concern and not a municipal affair as that term is used in Section 5 of Article XI of the California Constitution.

(f) This section shall not be construed to limit or remove any liability of a city or county prior to the amendment of the general plan except as provided in Section 8307 of the Water Code.

### **California Government Code Section 65860.1**

(a) Not more than 12 months after the amendment of its general plan pursuant to Section 65302.9, each city and county within the Sacramento-San Joaquin Valley shall amend its zoning ordinance so that it is consistent with the general plan, as amended.

(b) Notwithstanding any other law, this section shall apply to all cities, including charter cities, and counties within the Sacramento-San Joaquin Valley. The Legislature finds and declares that flood protection in the Sacramento and San Joaquin Rivers drainage areas is a matter of statewide concern and not a municipal affair as that term is used in Section 5 of Article XI of the California Constitution.

(c) This section shall not be construed to limit or remove any liability of a city or county prior to the amendment of the zoning ordinance except as provided in Section 8307 of the Water Code.

### **California Government Code Section 65865.5**

(a) Notwithstanding any other law, after the amendments required by Sections 65302.9 and 65860.1 have become effective, the legislative body of a city or county within the Sacramento-San Joaquin Valley shall not enter into a development agreement for property that is located within a flood hazard zone unless the city or county finds, based on substantial evidence in the record, one of the following:

(1) The facilities of the State Plan of Flood Control or other flood management facilities protect the property to the urban level of flood protection in urban and urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(2) The city or county has imposed conditions on the development agreement that will protect the property to the urban level of flood protection in urban and urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(3) The local flood management agency has made adequate progress on the construction of a flood protection system that

will result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas for property located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the urban level of flood protection shall be achieved by 2025.

(4) The property in an undetermined risk area has met the urban level of flood protection based on substantial evidence in the record.

(b) The effective date of amendments referred to in this section shall be the date upon which the statutes of limitation specified in subdivision (c) of Section 65009 have run or, if the amendments and any associated environmental documents are challenged in court, the validity of the amendments and any associated environmental documents has been upheld in a final decision.

(c) This section does not change or diminish existing requirements of local flood plain management laws, ordinances, resolutions, or regulations necessary to local agency participation in the national flood insurance program.

## **California Government Code Section 65962**

(a) Notwithstanding any other provision of law, after the amendments required by Sections 65302.9 and 65860.1 have become effective, each city and county within the Sacramento-San Joaquin Valley shall not approve a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone unless the city or county finds, based on substantial evidence in the record, one of the following:

(1) The facilities of the State Plan of Flood Control or other flood management facilities protect the project to the urban level of flood protection in urban and urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(2) The city or county has imposed conditions on the permit or discretionary entitlement that will protect the project to the urban level of flood protection in urban and urbanizing areas

or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(3) The local flood management agency has made adequate progress on the construction of a flood protection system which will result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas for property located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the urban level of flood protection shall be achieved by 2025.

(b) The effective date of amendments referred to in this section shall be the date upon which the statutes of limitation specified in subdivision (c) of Section 65009 have run or, if the amendments and any associated environmental documents are challenged in court, the validity of the amendments and any associated environmental documents has been upheld in a final decision.

(c) This section does not change or diminish existing requirements of local flood plain management laws, ordinances, resolutions, or regulations necessary to local agency participation in the national flood insurance program.

## **California Government Code Section 66474.5**

(a) Notwithstanding any other provision of law, after the amendments required by Sections 65302.9 and 65860.1 have become effective, the legislative body of each city and county within the Sacramento-San Joaquin Valley shall deny approval of a tentative map, or a parcel map for which a tentative map was not required, for a subdivision that is located within a flood hazard zone unless the city or county finds, based on substantial evidence in the record, one of the following:

(1) The facilities of the State Plan of Flood Control or other flood management facilities protect the subdivision to the urban level of flood protection in urban and urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(2) The city or county has imposed conditions on the subdivision that will protect the project to the urban level of

flood protection in urban and urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas.

(3) The local flood management agency has made adequate progress on the construction of a flood protection system which will result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in nonurbanized areas for property located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the urban level of flood protection shall be achieved by 2025.

(b) The effective date of amendments referred to in this section shall be the date upon which the statutes of limitation specified in subdivision (c) of Section 65009 have run or, if the amendments and any associated environmental documents are challenged in court, the validity of the amendments and any associated environmental documents has been upheld in a final decision.

(c) This section does not change or diminish existing requirements of local flood plain management laws, ordinances, resolutions, or regulations necessary to local agency participation in the national flood insurance program.

## **California Water Code Section 9610**

(a) (1) By July 1, 2008, the department shall develop preliminary maps for the 100- and 200-year flood plains protected by project levees. The 100-year flood plain maps shall be prepared using criteria developed or accepted by the Federal Emergency Management Agency (FEMA).

(2) The department shall use available information from the 2002 Sacramento and San Joaquin River Basins Comprehensive Study, preliminary and regulatory FEMA flood insurance rate maps, recent flood plain studies, and other sources to compile preliminary maps.

(3) The department shall provide the preliminary maps to cities and counties within the Sacramento-San Joaquin Valley for use as best available information relating to flood protection.



(4) The department shall post this information on the board's Internet Web site and may periodically update the maps as necessary.

(b) By July 1, 2008, the department shall give notice to cities in the Sacramento-San Joaquin Valley outside areas protected by project levees regarding maps and other information as to flood risks available from the Federal Emergency Management Agency or another federal, state, or local agency.

(c) On or before December 31, 2010, the department shall prepare a status report on the progress and development of the Central Valley Flood Protection Plan pursuant to Section 9612. The department shall post this information on the board's Internet Web site, and make it available to the public.

(d) (1) On or before July 2, 2013, and for the purpose of providing information to cities and counties necessary for their determinations relating to level of flood protection, the department shall release flood plain maps that identify at a minimum the facilities of the State Plan of Flood Control and the available data as to the water surface elevation of flooding in urban areas in the event of the failure of the facilities of the State Plan of Flood Control during flooding that has a 1-in-200 chance of occurring in any given year.

(2) Concurrent with the release of these maps and for the purpose of assisting local agencies in determining their level of flood protection, the department shall make available levee reliability data for the facilities of the State Plan of Flood Control identified in the maps.

(e) The department's issuance of flood plain maps shall not be subject to the review and approval of the Office of Administrative Law or to any other requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

(f) The state, or any state agency, shall not be liable for any claim based upon the reasonable exercise or performance of a discretionary or ministerial function or duty on the part of a state agency or a state employee or officer in carrying out subdivision (d).

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## Appendix B Definitions

**Adequate Progress** means all of the following:

- (1) The total project scope, schedule, and cost of the completed flood protection system have been developed to meet the appropriate standard of protection.
- (2) (A) Revenues that are sufficient to fund each year of the project schedule developed in paragraph (1) have been identified and, in any given year and consistent with that schedule, at least 90 percent of the revenues scheduled to be received by that year have been appropriated and are currently being expended. (B) Notwithstanding subparagraph (A), for any year in which state funding is not appropriated consistent with an agreement between a state agency and a local flood management agency, the Central Valley Flood Protection Board may find that the local flood management agency is making adequate progress in working toward the completion of the flood protection system.
- (3) Critical features of the flood protection system are under construction, and each critical feature is progressing as indicated by the actual expenditure of the construction budget funds.
- (4) The city or county has not been responsible for a significant delay in the completion of the system.
- (5) The local flood management agency shall provide the Department of Water Resources and the Central Valley Flood Protection Board with the information specified in this subdivision sufficient to determine substantial completion of the required flood protection. The local flood management agency shall annually report to the Central Valley Flood Protection Board on the efforts in working toward completion of the flood protection system (California Government Code Section 65007(a)).

**Appurtenant Structures** are features associated with a levee or floodwall that are necessary to reasonably reduce the potential of floodwater entering a defined area, and to manage ponding of internal drainage against the levee or floodwall through the use of closure gates, flashboards, berms, revetments, pumping stations, culverts, and detention basins.

**Civil Engineer** is a licensed civil engineer in the State of California.

**Developed Area** is an area of a community that is:

(a) A primarily urbanized, built-up area that is a minimum of 20 contiguous acres, has basic urban infrastructure, including roads, utilities, communications, and public facilities, to sustain industrial, residential, and commercial activities, and (1) Within which 75 percent or more of the parcels, tracts, or lots contain commercial, industrial, or residential structures or uses; or (2) Is a single parcel, tract, or lot in which 75 percent of the area contains existing commercial or industrial structures or uses; or (3) Is a subdivision developed at a density of at least two residential structures per acre within which 75 percent or more of the lots contain existing residential structures at the time the designation is adopted.

(b) Undeveloped parcels, tracts, or lots, the combination of which is less than 20 acres and contiguous on at least 3 sides to areas meeting the criteria of paragraph (a) at the time the designation is adopted.

(c) A subdivision that is a minimum of 20 contiguous acres that has obtained all necessary government approvals, provided that the actual start of construction of structures has occurred on at least 10 percent of the lots or remaining lots of a subdivision or 10 percent of the maximum building coverage or remaining building coverage allowed for a single lot subdivision at the time the designation is adopted and construction of structures is underway. Residential subdivisions must meet the density criteria in paragraph (a)(3) (CFR Title 44, Section 59.1).

**Development Project** means any project undertaken for the purpose of development. "Development project" includes a project involving the issuance of a permit for construction or reconstruction but not a permit to operate. "Development project" does not include any ministerial projects proposed to be carried out or approved by public agencies (California Government Code Section 65928).

**Effective Period** is the duration of time during which a finding is valid if the city or county plans to rely on a previous finding for subsequent approvals.

**Flood Hazard Zone** is an area subject to flooding that is delineated as either a special hazard area or an area of moderate hazard on an official flood insurance rate map issued by the Federal Emergency Management

Agency. The identification of flood hazard zones does not imply that areas outside the flood hazard zones, or uses permitted within flood hazard zones, will be free from flooding or flood damage (California Government Code Section 65007(d)).

**Flood Insurance Rate Map** is an official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community (CFR Title 44, Section 59.1).

**Flood Management Facility** is a structural facility that reduces potential flooding by excluding, removing, or accommodating accumulated stormwaters from the land. These structural facilities may protect a specific geographic area under consideration from a particular source (or sources) of flooding, but not necessarily from other sources of flooding. These structural facilities may be comprised of, but not limited to, levees, floodwalls, and their appurtenant structures.

**Imposed Conditions** are conditions that could include, but are not limited to, new flood management facilities, or nonstructural requirements such as floodproofing or elevating structures in accordance with the NFIP.

**Independent Panel of Experts** is a group of three or more recognized experts that are consistent with USACE EC 1165-2-214, dated December 15, 2012, following the procedure for USACE Type II Independent External Peer Review to the extent applicable.

**Levee Flood Protection Zone** means an area that is protected, as determined by the Central Valley Flood Protection Board or the Department of Water Resources, by a levee that is part of the facilities of the State Plan of Flood Control, as defined under Section 5096.805 of the Public Resources Code (California Government Code Section 65300.2(b)).

**Levees and floodwalls** are defined in the Urban Levee Design Criteria (DWR, 2012). The levee(s) or floodwall(s) may protect a specific geographic area being considered from a particular source (or sources) of flooding, but not necessarily from other sources of flooding.

**Level of (Flood) Protection** means the return period of the highest water surface elevation for which a property, project, or subdivision will withstand flooding, or a levee or floodwall will protect against flooding, using criteria and safety margins consistent with, or developed by, DWR for achieving an urban level of flood protection.

**Moderate Flood Hazard Area** is a flood hazard area, as identified on the FIRM, labeled Zone B or Zone X (shaded), are the areas between the limits

## Urban Level of Flood Protection Criteria Appendices

of the base flood and the 0.2% annual chance or a 500-year flood (FEMA, 2010a).

**National Federal Emergency Management Agency standard of flood protection** means the level of flood protection that is necessary to withstand flooding that has a 1-in-100 chance of occurring in any given year using criteria developed by the Federal Emergency Management Agency for application in the National Flood Insurance Program (California Government Code Section 65007(e)).

**Nonurbanized Area** is a developed area or an area outside a developed area in which there are fewer than 10,000 residents that is not an urbanizing area (California Government Code Section 65007(f)).

**Parcel Map** shall be required when any one of the following occurs:

(a) The land before division contains less than five acres, each parcel created by the division abuts upon a maintained public street or highway, and no dedications or improvements are required by the legislative body.

(b) Each parcel created by the division has a gross area of 20 acres or more and has an approved access to a maintained public street or highway.

(c) The land consists of a parcel or parcels of land having approved access to a public street or highway, which comprises part of a tract of land zoned for industrial or commercial development, and which has the approval of the governing body as to street alignments and widths.

(d) Each parcel created by the division has a gross area of not less than 40 acres or is not less than a quarter of a quarter section.

(e) The land being subdivided is solely for the creation of an environmental subdivision pursuant to Section 66418.2.(California Government Code Section 66426).

**Project Levee** means any levee that is part of the facilities of the State Plan of Flood Control (California Government Code Section 65007(g)).

**Significant Physical Change** is a physical change within the flood management system that reduces the level of flood protection for an area under consideration by 20 percent or more below an urban level of flood protection (e.g., 160-year level of flood protection) and results in a 6-inch or greater change in channel water surface elevation or flood depth.

**Sacramento-San Joaquin Valley** means any lands in the bed or along or near the banks of the Sacramento River or San Joaquin River, or any of their tributaries or connected therewith, or upon any land adjacent thereto, or within any of the overflow basins thereof, or upon any land susceptible to overflow there from. The Sacramento-San Joaquin Valley does not include lands lying within the Tulare Lake basin, including the Kings River (California Government Code Section 65007(h)).

**Special Flood Hazard Area** is the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/AH, Zone AR/A, Zone V, Zone VE, Zone VO, and Zones V1-V30 (FEMA, 2010a).

**Subdivision** means the division, by any subdivider, of any unit or units of improved or unimproved land, or any portion thereof, shown on the latest equalized county assessment roll as a unit or as contiguous units, for the purpose of sale, lease or financing, whether immediate or future (California Government Code Section 66424).

**Tentative and Final Maps** shall be required for all subdivisions creating five or more parcels, five or more condominiums as defined in Section 783 of the Civil Code, a community apartment project containing five or more parcels, or for the conversion of a dwelling to a stock cooperative containing five or more dwelling units, except where any one of the following occurs:

- (a) The land before division contains less than five acres, each parcel created by the division abuts upon a maintained public street or highway, and no dedications or improvements are required by the legislative body.
- (b) Each parcel created by the division has a gross area of 20 acres or more and has an approved access to a maintained public street or highway.
- (c) The land consists of a parcel or parcels of land having approved access to a public street or highway, which comprises part of a tract of land zoned for industrial or commercial development, and which has the approval of the governing body as to street alignments and widths.
- (d) Each parcel created by the division has a gross area of not less than 40 acres or is not less than a quarter of a quarter section.
- (e) The land being subdivided is solely for the creation of an environmental subdivision pursuant to Section 66418.2.

## Urban Level of Flood Protection Criteria Appendices

(f) A parcel map shall be required for those subdivisions described in subdivisions (a), (b), (c), (d), and (e) (California Government Code Section 66426).

**Tulare Lake Basin** means the Tulare Lake Hydrologic Region as defined in the California Water Plan Update 2009, prepared by the Department of Water Resources pursuant to Chapter 1 (commencing with Section 10004) of Part 1.5 of Division 6 of the Water Code (California Government Code Section 65007(j)).

**Undetermined Risk Area** means an urban or urbanizing area within a moderate flood hazard zone, as delineated on an official flood insurance rate map issued by the Federal Emergency Management Agency, which has not been determined to have an urban level of protection (California Government Code Section 65007(k)).

**Urban Area** means a developed area in which there are 10,000 residents or more (California Government Code Section 65007(l)).

**Urban Level of Flood Protection** means the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources. “Urban level of flood protection” shall not mean shallow flooding or flooding from local drainage that meets the criteria of the national Federal Emergency Management Agency standard of flood protection (California Government Code Section 65007(n)).

**Urbanizing Area** means a developed area or an area outside a developed area that is planned or anticipated to have 10,000 residents or more within the next 10 years (California Government Code Section 65007(m)).

**Withstand Flooding** means all structures must be capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage. The term “prolonged contact” means at least 72 hours, and the term “significant damage” means any damage requiring more than cosmetic repair. “Cosmetic repair” includes cleaning, sanitizing, and resurfacing (e.g., sanding, repair of joints, repainting) of the material. The cost of cosmetic repair should also be less than the cost of replacement of affected materials and systems. In addition to these requirements, individual materials that are considered flood damage-resistant must not cause degradation of adjacent materials or the systems of which the material is a part (FEMA, 2008).



# Appendix C

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**Urban Level of Flood Protection Criteria  
Appendices**

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**Urban Level of Flood Protection Criteria  
Appendices**

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